Nanotechnology

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Faculty	Faculty of Materials Science and Technology
Type of study	Doctoral
Language of instruction	English
Code of the programme	P0719D270003
Regular period of the study	4 years
Coordinating department	Department of Materials Engineering and Recycling
Coordinator	doc. Dr. Mgr. Kamil Postava
Keywords	nanotechnology, nanomaterials

About study programme

The study programme Nanotechnology - cotutelle is interdisciplinary doctoral programme covering the field of physics, chemistry, material engineering, applied mathematics, and application of computational methods to describe, design, and prepare of nanostructures, nanomaterials, and nanosystems. Specific aspect of the study programme is joint international supervision of doctoral student on the basis of international contract between VŠB-TUO and foreign university, long-term stays at the foreign university supervised by a foreign supervisor, defense of the doctoral thesis under international jury, and obtaining two diplomas from both universities.

Graduate's employment

Innovativeness of the proposed study programme is given in (i) creation of narrow connection of doctoral study with applied research by implementation of research stays in foreign into study plan of novel research-focused doctoral programme. The graduates will found their employment in research instututes, universities, and also in research and development departments of companies focused on advanced technologies.

Typical employment positions:
Education of top-class specialists in the field of Nanotechnology-Cotutelle significantly increases their employment, particularly in research and applied technology.
The potential jobs consists of positions in applied-research, independent research, development, and testing industry, research institutes or specialized university departments in Czech Republic or foreign, Moreover, due to international character of the study the graduates will be competitive in the European and world-wide research and technology jobs. Typical employment positions are researchers and academic employee, university teachers, specialist in industrial research and innovations, leading metrolog, head of testing laboratories, technologist, manager in industry.

Study aims

The main target is to contribute to improve conditions for education related to research, development, and innovations in the field of Nanotechnology and related increase of quality and enhancement of human resources. Proposed study programme attempts to enhance of education quality in doctoral study to a level comparable with leading European and world universities and to reach international competitiveness in the frame of European and worldwide research. The competitiveness will be reached in the doctoral study programme itself and also the programme graduands - internal researchers with specialization in Nanotechnology. The way to reach the target is a formation of the research-oriented doctoral study program Nanotechnology - Cotutelle, which is a concept characterized by double international supervision of dissertation thesis completed by obtaining of two doctoral degrees - from VSB-TUO and from foreign university. The organization of the study will contribute to fulfill the above mentioned project target. The foreign specialist from Europe and world universities will be involved in formation of the study programme. The long-term research

stays in foreign universities will reflect new requirements of applied research to graduands of the research oriented study programme and their experience in solution of scientific and research tasks.

Graduate's knowledge

Students of doctoral study programme Nanotechnology - Cotutelle will gain wide theoretical and interdisciplinary knowledge in the field of physics, chemistry, material engineering, applied mathematics, and application of computational methods at VSB-TUO and foreign university. They will learn to describe, design, and prepare of nanostructures and nanomaterials in the frame of appropriately selected subjects and particularly during preparation of dissertation thesis. Their theoretical knowledge will be completed by experiences with modern technological processes, by modelling, design, preparation, testing, and industrial application of nanostructures.

Graduate's skills

Students after graduation will be able to design and apply advanced scientific methods, apply them in their research in obtaining original results and consequently contribute in enhancement of knowledge in the scientific field. Attention will be devoted to develop of the individual creative thinking of the students of doctoral study programme Nanotechnology - Cotutelle and present the obtain results to specialists and the public. The students will be leaded to active participation on national and international scientific conferences. and publication of their research results in high-level international journals.

Graduate's general competence

Graduates of the doctoral study programme will be able to formulate scientific problem themselves, perform its analysis, and realize its solution in an original way. They will learn to use modern experimental techniques and critically evaluate obtained results with state of the art published. On a basis of research stays in the foreign countries the students will make the connection between theory and experiences deeper and enhance communication with international scientific community. The students will experience international team collaboration. The students will have a duty to be involved in research and development during their study. During the foreign stay they will obtain invaluable technical and also growing professional experiences, which will be an advantage in their future carrier.

Study curriculum

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